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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,878	11/04/2003	Masaki Kato	H6790.0004/P004	3496
24998	7590	12/11/2006		
DICKSTEIN SHAPIRO LLP 1825 EYE STREET NW Washington, DC 20006-5403				
			EXAMINER ANGEBRANNDT, MARTIN J	
			ART UNIT	PAPER NUMBER

1756

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,878

Applicant(s)

KATO ET AL.

Examiner

Martin J. Angebranndt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The response of the applicant has been read and given careful consideration. Response to the arguments and amendments appears after the first rejection to which they are directed. The basis for the correction to the thickness of the reflective layer in the specification and claims is accepted. **The terminal disclaimers are improper. They have not been executed by an attorney of record in the oath, please resubmit these with a signature form one of those listed on page 4 of the Oath.**

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 and 12-13 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Harigaya et al. '445.

Example 3 has a polycarbonate substrate, a 70 nm ZnS-SiO₂ layer, a 20 nm

Ge₂Ga₃Sb₇₅Te₁₅Mg₂ recording layer, a 10 nm ZnS-SiO₂ layer, a 5 nm SiC layer a 140 nm Ag

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layer and a 5-10 micron UV cured layer. This is then initialized using an 800 mW laser at a velocity of 3 m/s and used at a recording velocity of 8.5 or 17.5 m/s. [0057-0064,0068,0070,0081]. Examples 2 and 4 and comparative examples are similar, but differ in the composition for the recording layer [0077-0082]. The composition of the Sb may be as high as 85% [0036]. The reflective layer may be Ag alloys [0048]. The upper dielectric layer may have a thickness of preferably 5-20 nm [0044].

In cited example 3, x is 0.03, y is 0.02, $x+y=0.05$ which is less than 0.1, z is 0.833 and Mn is present at 0.02. Further, the thickness of the recording, upper protective ZnS-SiO₂ layer, Silicon containing layer (SiC/Si) and reflective layer are similar. The use of an SiC layer or an Si layer is discussed in the prepub of the instant specification at [0063]. The Pw power in the prior art is 17 mW [0072] at a linear velocity of 17.5 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is $17 \text{ mW}/17.5 = 0.97$, and for the inventive examples is 1.15. Based upon the composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this. Note that the claims are not directed to the methods of use, so the functionality can be inherent, but need not be demonstrated in the prior art references. The rejection stands.

5. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harigaya et al. '445.

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It would have been obvious to one skilled in the art to use a thinner composite dielectric layer, such that the ZnS-SiO₂ layer is 5 nm or less in thickness with a reasonable expectation of forming a useful optical recording medium.

The examiner notes that the term "oxide layer" is held to embrace any layer including an oxide.

The rejection stands for the reasons above without further comment.

6. Claims 1-9 and 12-13 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Harigaya et al. '346

Example 20 teaches polycarbonate substrates coated with a 70 nm ZnS-SiO₂ layer, a 18 nm Ge₃Ga₃Sb₇₃Te₁₅Mn₆ recording layer, a 15 nm ZnS-SiO₂ layer, a 4 nm SiC layer, a 140 nm Ag layer and a 5 micron UV cured layer. Examples 19 and 22 are similar. The recording power is 19 mW (16/54). This is then initialized using an 850 mW laser at a velocity of 3.5 m/s and used at a recording velocity of 17.5 m/s. (16/10-65, table 1 in column 17-18). The upper dielectric layer may be 5-50 nm (11/19-25). The Sb content can be as high as 81% (6/40-49).

In cited example 20, x is 0.03, y is 0.03, x+y=0.06 which is less than 0.1, z is 0.829 and Mn is present at 0.06. In cited example 19, x is 0.04, y is 0.04, x+y=0.08 which is less than 0.1, z is 0.806 and Mn is present at 0.04. Further, the thickness of the recording, upper protective ZnS-SiO₂ layer, Silicon containing layer (SiC/Si) and reflective layer are similar. The use of an SiC layer or an Si layer is discussed in the prepub of the instant specification at [0063]. The Pw power in the prior art is 19 mW [0072] at a linear velocity of 17 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is $19 \text{ mW}/17 = 1.11$, and for the inventive examples is 1.15. Based upon the

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composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this. The rejection stands.

7. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harigaya et al. '346.

It would have been obvious to one skilled in the art to use a thinner composite dielectric layer, such that the ZnS-SiO₂ layer is 5 nm or less in thickness with a reasonable expectation of forming a useful optical recording medium.

The examiner notes that the term "oxide layer" is held to embrace any layer including an oxide.

The rejection stands for the reasons above without further comment.

8. Claims 1,3,4,6-8 and 12-13 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Harigai et al. JP 2003-246140. (machine translation attached)

Example 8 has a polycarbonate substrate, a 80 nm ZnS-SiO₂ layer, a 15 nm GeGaSbTeSn recording layer, a 35 nm ZnS-SiO₂ layer, an 120nm Ag and a 5-10 micron UV cured layer.

[0015, table 1].

In cited example 8, x is 0.03, y is 0.02, x+y=0.05 which is less than 0.1, z is 0.819 and Sn is present at 0.01. Further, the thickness of the recording, upper protective ZnS-SiO₂ layer and reflective layer are similar. The Pw power in the prior art is 17 mW [0072] at a linear velocity of 15 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is $17 \text{ mW}/15 = 1.13$, and for the inventive

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examples is 1.15. Based upon the composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this. The rejection stands.

9. Claims 1,3,6-9 and 12-13 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Muira et al. JP 2002-331758 (machine translation attached).

Example 4 has a polycarbonate substrate, a 60 nm ZnS-SiO₂ layer, a 1.5 nm GaTe layer, a 19 nm Ge_{2.0}Ga_{2.5}Sb_{7.9}Te_{14.2}In_{1.1} recording layer, a 14 nm ZnS-SiO₂ layer, a 140 nm AlTi layer and a UV cured layer.

In cited example 4, x is 0.025, y is 0.02, x+y=0.045 which is less than 0.1, z is 0.804 and In is present at 0.011. Further, the thickness of the recording, upper protective ZnS-SiO₂ layer and reflective layer are similar. The Pw power in the prior art is 17 mW at a linear velocity of 17 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is 17 mW/15 = 1.00, and for the inventive examples is 1.15. Based upon the composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this. The rejection stands.

10. Claims 1-3,6-8 and 12-13 are rejected under 35 U.S.C. 102(a) as being fully anticipated by Suzuki et al. JP 2002-347349 (machine translation attached).

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Example 8 has a polycarbonate substrate, a 60 nm ZnS-SiO₂ layer, a 14 nm Ge₃Ga₅Sb₇₇Te₁₅ recording layer, a 18 nm ZnS-SiO₂ layer, a 140 nm Ag layer and a UV cured layer.[0056,0058] The other examples and Comparative examples are similar.

In cited example 8, x is 0.05, y is 0.03, x+y=0.08 which is less than 0.1, z is 0.836. Further, the thickness of the recording, upper protective ZnS-SiO₂ layer and reflective layer are similar. The Pw power in the prior art is 15 mW [0050] at a linear velocity of 18 m/s while that used in the examples of the instant application is 33 mW [0110] at a velocity of 28.8 m/s. The exposure in the prior art is $15 \text{ mW}/18 = 0.83$ and for the inventive examples is 1.15. Based upon the composition and the thickness of the layers, the examiner holds that the medium of the prior art would be able to record information at a linear velocity between 28.8 and 33.6 m/s when exposed at a higher laser power. As the cited prior art and the instant application are commonly assigned, the applicant may have performance data on hand to refute this. The rejection stands.

11. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harigaya et al. '445, in view of Kunitomo et al. '641 and Takahashi et al. '355.

Kunitomo et al. '641 teach GeSbTe recording layers with Ga, Sn, Ag, Se as additives [0033-0034]. These allow high speed overwriting. The use of reflective layers having thicknesses of up to 1000 nm is disclosed, although they are usually thinner [0042].

Takahashi et al. '355 teach GeSbTe recording layers with Mn, Sn, and Ag as additives in amounts of less than 5% (7/37-46 and 8/55-59).

In addition to the basis provided above, it would have been obvious to modify the cited examples by adding various additives in amounts of 1-4% to the recording layers, such as the Ag, Sn, Mn, or Se taught by teach GeSbTe recording layers with Ga, Sn, Ag, Se as additives as

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taught by Kunitomo et al. '641 and Takahashi et al. '355 with a reasonable expectation of gaining the benefits ascribed to this by the references and/or to use thicker reflective layers of up to 1000 nm as taught by Kunitomo et al. '641 with a reasonable expectation of forming a useful optical recording medium.

The rejection stands for the reasons above.

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-4,6-8 and 10-13 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6790592. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and the cited patent include coverage for GeGaSbTeMg based optical recording media.

The terminal disclaimers are defective as discussed above.

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14. Claims 1-8 and 10-13 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of U.S. Patent No. 6770346. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and the cited patent include coverage for GeGaSbTeMn based optical recording media.

The terminal disclaimers are defective as discussed above.

15. Claims 1-4,6-8 and 10-13 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 11/130568 (2005/0254410). Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and the cited application include coverage for GeGaSbTeSn based optical recording media.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The terminal disclaimers are defective as discussed above.

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

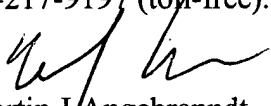
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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranntt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Martin J. Angebranntt
Primary Examiner
Art Unit 1756

12/05/2006